IN THE CLAIMS

Please cancel claims 2, 3, 7, 11 and 16, add claims 21 - 25, and further amend the claims as indicated below.

1. (currently amended) A method ~~of load dependent analyzing an optical component (114,), comprising the steps of~~ comprising:

~~intermittently~~ providing a load signal ~~(108)~~ to ~~the~~ an optical component ~~(114)~~, wherein the load signal is periodic, and has a period having a time interval during which the load signal is present at the optical component, and a time interval during which the load signal is not present;

providing a measurement signal ~~(115a)~~ to the optical component ~~(114), so that the component (114) can influence the measurement signal (115a)~~ to create a component signal ~~(120)~~ influenced by the ~~component (114),~~ optical component;

superimposing a reference signal ~~(115b)~~ with the component signal ~~(120)~~ to provide a superimposed ~~signal (118),~~ signal;

detecting the superimposed signal ~~(118)~~ when the ~~loading~~ load signal ~~(108)~~ is not present at the optical component ~~(114),~~ to provide an information containing signal ~~(126),~~; and

processing the information containing signal ~~(126)~~ to determine an optical property of the optical component ~~(114)~~ dependent on a property of the load signal ~~(108)~~.

2. (canceled)

3. (canceled)

4. (currently amended) The method of claim 1 ~~or any one of the above claims, further comprising the step of:~~

~~composing~~, wherein the load signal ~~(108) by~~ is composed of at least two loading signals ~~(106)~~ spaced in optical frequency.

5. (currently amended) The method of claim 4, ~~further comprising the step of:~~

~~intermittently providing the load signal (108) to the component (114) by executing at least one of the following:~~wherein the providing of the load signal comprises a technique selected from the group consisting of switching the two loading signals ~~(106)~~ on and off, and modulating the load signal ~~(108)~~.

6. (currently amended) The method of claim 1 ~~or any one of the above claims~~, further comprising ~~the step of~~:

controlling the provision of the load signal ~~(108)~~ by a controlling signal ~~(105, 107, 129)~~; and

mixing the controlling signal with the information containing signal.

7. (canceled)

8. (currently amended) The method of claim 1 ~~or any one of the above claims~~, further comprising ~~the step of~~:

band pass filtering the information containing signal ~~(126)~~ before the processing of the information containing signal ~~(126)~~.

9. (currently amended) The method of claim 1 ~~or any one of the above claims~~, further comprising ~~the step of~~:

at least temporarily switching off the reference signal to detect solely ~~the~~ a signal ~~(120, received~~ from the optical component ~~(114,) to perform~~; and

performing a time domain extinction measurement of the optical component ~~(114,)~~.

10. (currently amended) The method of claim 1 ~~or any one of the above claims, further comprising the step of:~~

wherein the ~~determined optical properties comprising at least one of the following group comprising:~~ optical property is selected from the group consisting of group delay, differential group delay, loss, gain, noise figure, gain tilt, and polarization dependent gain.

11. (canceled)

12. (currently amended) An apparatus ~~for load dependent analyzing an optical component (114,~~ comprising:

(a) an interferometer ~~(112)~~ comprising:

a reference arm ~~(116)~~ to receive a reference ~~signal (115b),~~ signal; and

a measurement arm ~~(111)~~ to receive a measurement signal ~~(1115a)~~ and for providing the measurement signal ~~(115a)~~ to ~~the~~ an optical component ~~(114), so that the component (114) can influence the measurement signal (115a)~~ to create a signal ~~(120) influenced and received from the component (114),~~ influenced by the optical component;

(b) a load source ~~(104)~~ for ~~intermittently~~ providing a load signal ~~(108)~~ to the optical component ~~(114)~~, wherein the load signal is periodic and has a period having a time interval during which the load signal is present at the optical component, and a time interval during which the load signal is not present at the optical component;

(c) a first beam splitter ~~(121) at the~~ at a junction of a beginning of the reference arm ~~(116)~~ and a beginning of the measurement arm ~~(111),~~ for splitting an initial signal ~~(115)~~ into the reference signal ~~(115b)~~ and ~~into~~ the measurement signal ~~(115a);~~

(d) a second beam splitter ~~(123)~~ at ~~the~~ an a junction of an end of the reference arm ~~(116) and of the measurement arm (111)~~ and a line from an output of the optical component, for superimposing the reference signal ~~(115b)~~ with a signal ~~(120)~~ received from the optical component ~~(114,),~~ to provide a superimposed signal ~~(118),;~~

(e) a detector ~~(124)~~ for detecting the superimposed signal ~~(118)~~ when the ~~loading~~ load signal ~~(108)~~ is not present at the optical component ~~(114),~~ to provide an information containing signal ~~(126)~~, and

(f) a signal processor ~~(140)~~ for processing the information containing signal ~~(126)~~ to determine an optical property of the optical component ~~(114)~~.

13. (currently amended) The apparatus of claim 12,

wherein the load source ~~(104) being~~ comprises a load bank ~~(102)~~ composed of at least two loading sources ~~(104)~~ for composing the load signal ~~(108)~~ by at least two loading signals ~~(106)~~ spaced in optical frequency.

14. (currently amended) The apparatus of claim 12 ~~or any one of the above claims~~,
wherein the the load source ~~(104) being composed of~~ comprises at least two loading sources ~~(104)~~ for composing the load signal (108) by at least two loading signals ~~(106)~~ spaced in optical frequency, and further comprising ~~at least one of the following~~ a device selected from the group consisting of:
a modulator ~~(110)~~ for ~~intermittently providing the load signal (108) to the component (114) by~~ modulating the load signal ~~(108)~~, and a ~~first~~ switch for switching the ~~loading~~ load source ~~(104)~~ on and off.

15. (currently amended) The apparatus of claim 12 ~~or any one of the above claims~~, further comprising:
~~a~~ an RF source ~~(132)~~ for controlling the provision of the load signal ~~(108)~~ by a controlling signal ~~(105, 107, 129)~~; and
a mixer for mixing the controlling signal with the information containing signal.

16. (canceled)

17. (currently amended) The apparatus of claim 12 ~~or any one of the above claims~~, further comprising:
a band pass filter ~~(136)~~ for extracting the information containing signal ~~(126)~~ before the processing of the information containing signal ~~(126)~~.

18. (currently amended) The apparatus of claim 12 ~~or any one of the above claims, further comprising:~~,
wherein the switch is a first switch, and
wherein the apparatus further comprises:

a second switch ~~(119)~~ for at least temporarily switching off the reference signal ~~(115b)~~ to detect solely the signal ~~(120)~~ received from the optical component ~~(114),~~ to ~~be able to perform~~ facilitate a time domain extinction measurement of the optical component ~~(114)~~.

19. (currently amended) The apparatus of claim 12 ~~or any one of the above claims, further comprising:, the determined optical properties comprising at least one of the following:~~ wherein the optical property is selected from the group consisting of group delay, differential group delay, loss, gain, noise figure, gain tilt, and polarization dependent gain.

20. (currently amended) An apparatus ~~adapted for load dependent analyzing an optical component (114)~~, comprising:

a first signal source ~~adapted for intermittently~~ for providing a load signal ~~(108) to the~~ to an optical component ~~(114)~~, wherein the load signal is periodic and has a period having a time interval during which the load signal is present at the optical component, and a time interval during which the load signal is not present;

a second signal source ~~adapted~~ for providing a measurement signal ~~(115a)~~ to the optical component ~~(114), so that the component (114) can influence the measurement signal (115a)~~ to create a component signal ~~(120)~~ influenced by the ~~component (114),~~ optical component;

a reference signal source ~~adapted~~ for providing a reference ~~signal (115b),~~ signal;

a detector ~~adapted~~ for detecting, when the ~~loading~~ load signal ~~(108)~~ is not present at the optical component ~~(114)~~, a superimposed signal ~~(118) as~~ that results from a superimposition of the reference signal ~~(115b) with~~ and the component signal ~~(120) to a superimposed signal (118)~~, and for providing therefrom an information containing ~~signal (126),~~ signal; and

a processing unit ~~adapted~~ for processing the information containing signal ~~(126)~~ to determine an optical property of the optical component ~~(114)~~ dependent on a property of the load signal ~~(108)~~.

21. (new) The method of claim 1, wherein the time interval during which the load signal is not present is less than a time constant of a load dependent optical property of the optical component.

22. (new) The apparatus of claim 12, wherein the time interval during which the load signal is not present is less than a time constant of a load dependent optical property of the optical component.

23. (new) The apparatus of claim 12, further comprising a demodulator that (a) receives the superimposed signal, and a signal from the load source that indicates when the load signal is not present at the optical component, and (b) passes the superimposed signal to the detector when the signal from the load source indicates that the load signal is not present at the optical component.

24. (new) The apparatus of claim 20, wherein the time interval during which the load signal is not present is less than a time constant of a load dependent optical property of the optical component.

25. (new) The apparatus of claim 20, further comprising a demodulator that (a) receives the superimposed signal, and a signal from the first signal source that indicates when the load signal is not present at the optical component, and (b) passes the superimposed signal to the detector when the signal from the load source indicates that the load signal is not present at the optical component.